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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,849	09/15/2000	Martin Schuessler	1748X/49153	2146

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CROWELL & MORING, L.L.P.
P.O. Box 14300
Washington, DC 20044-4300

EXAMINER	
WACHTEL, ALEXIS A	
ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 05/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/662,849	SCHUESSLER, MARTIN	
	Examiner	Art Unit	
	Alexis Wachtel	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 December 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6 and 8-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6 and 8-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Response to Amendment

1. Applicant's amendment and accompanying Remarks filed 12-7-05 have been entered and carefully considered.

The amendment is sufficient to overcome the obviousness rejections of the pending claims. However, an updated search yielded new prior art that provides a new basis of rejection as shown below. Applicant's arguments are rendered moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4,6,8-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,159,434 to Gonjo et al in view of DE 197 43 673 A1 to Schussler et al and US 5,316,747 to Pow et al.

With respect to claim 1, A system for heating or converting at least one medium, said system comprising at least one of an evaporator (Fig. 1, item 2), a reactor (Fig.1, items 4,4a,5,6a,6b) and a heat exchanger (Fig.1, item 7a), having layers arranged in a stack (Col 5, lines 15-22), wherein the stack includes separator devices (46) which

divides it into a plurality of function areas' wherein the layers are arranged between a lower end plate and an upper end plate (Gonjo et al, Fig.9).

While Gonjo et al teaches the use of alloy plate layers some of which have a catalyst disposed thereon (Col 6, lines 10-19), Gonjo et al fails to teach that the layers are formed by pressing of the catalyst material and that an insulation layer surrounding a stack of layers. Schussler et al teaches an apparatus made of pressed catalyst layers used for producing hydrogen from hydrocarbons. A reaction mixture flows under pressure through the catalyst layer while the pressure drops. Since the catalyst coated alloy plate layers used in the reactor portion of Gonjo et al's system and the pressed catalyst layers disclosed by Schussler et al are functionally equivalent, it would have been obvious to one of ordinary skill to have replaced the catalyst coated alloy plate layers with pressed catalyst layers with a reasonable expectation of success. With reference to Fig.2 of the Schussler et al reference, the surrounding edges of each pressed catalyst layer define, as a whole, an insulating layer surrounding the functional portions of each layer.

Edges define insulating layer

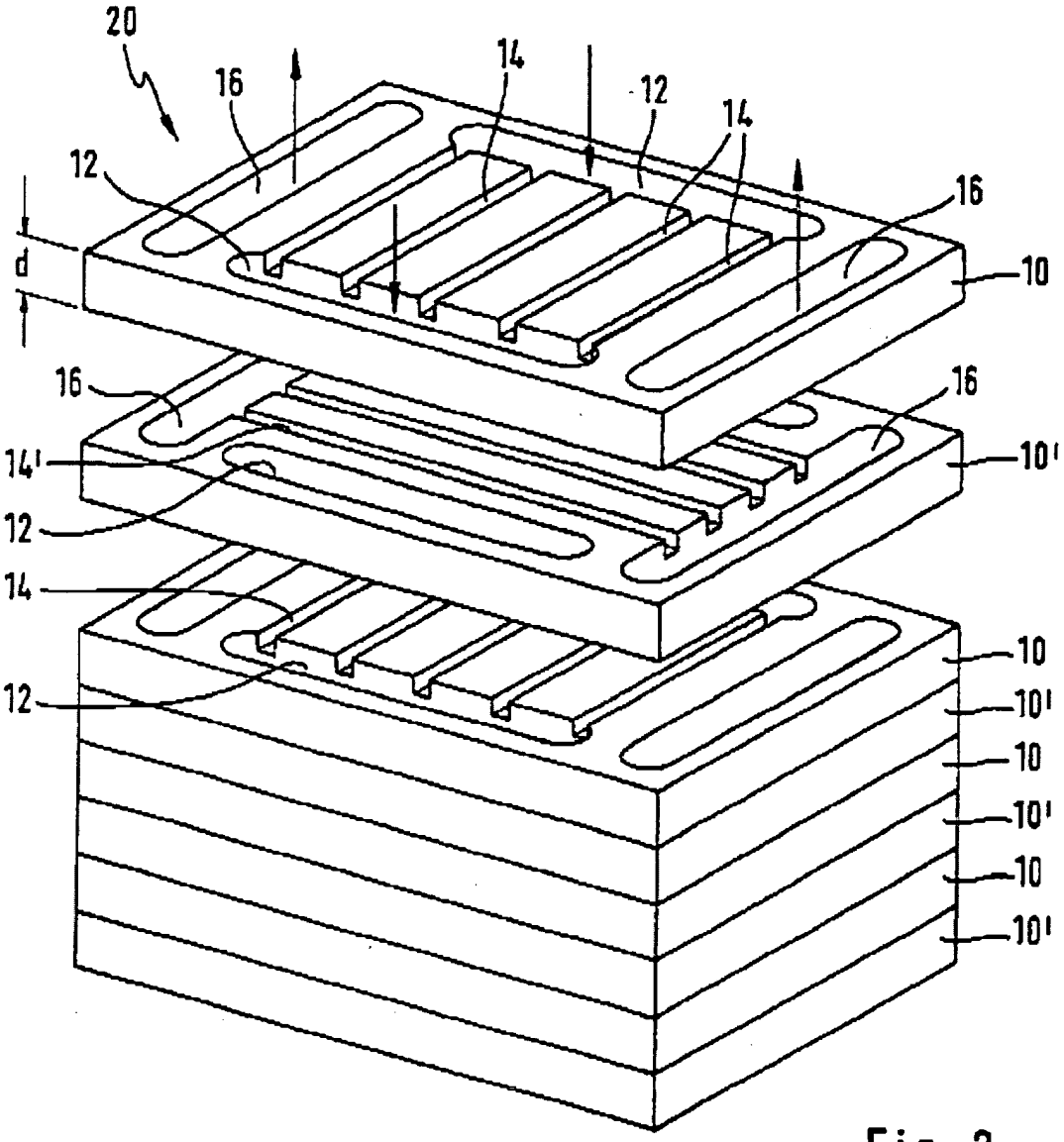

Fig. 2

Gonjo et al in view of Schussler et al fail to teach that insulating plates are provided between the end plates and layers which are respectively adjacent to the end plates. Pow et al teaches a reactor (Fig.1) that has endplates (15 and 11). Additionally, a reactor containment shell (Fig.8, item 12) corresponds to claimed insulation plates

and is found adjacent to end plates.The containment shell effectively functions to isolate the reactor assembly from the outside environment. Since Pow et al teaches the concept of providing a stacked functional system with insulator plates it would have been obvious to one of ordinary skill to have improved on the apparatus disclosed by Gonjo et al and Schussler et al by providing an insulation plate adjacent to the end plates and layers. One of ordinary skill would have been motivated by the desire to further insulate the layers from the outer environment.

With respect to claim 2: Since Gonjo et al and Schussler et al as set forth above teach the use of layers formed from pressed catalyst, at least one medium can inherently be pressed through the layers, with a resulting pressure drop.

With respect to claim 3: Since Gonjo et al and Schussler et al as set forth above teach the use of layers formed from pressed catalyst, at least one medium can inherently flow over the layers, with a resulting pressure drop.

With respect to claim 4: Wherein said separator devices comprise insulating plates which divide the stacked layers into thermally mutually insulated function areas (Gonjo et al, item 46).

With respect to claim 6: Gonjo et al teaches that wherein separator plates are parallel to the layers (46).

With respect to claim 8, the references as set forth above are silent as to the material used to make the endplates. However, aluminum is a light, strong, heat and corrosion resistant material. One of ordinary skill would have recognized the utility of

employing endplates made of aluminum motivated by the desire of using durable endplate material with a reasonable expectation of success.

With respect to claim 9:The system according to claim 5, further comprising devices for clamping the layers between the two end plates (Gonjo et al, Col 13, lines 25-26).

With respect to claim 10:The system according to claim 9, wherein the devices for clamping are formed by tie rods (Gonjo et al, Col 13, lines 25-26).

With respect to claim 11: Gonjo et al teaches that edge areas of the layers are sealed off with respect to the environment. Examiner notes that the edge layers of the layers are inherently sealed to some degree since a plurality of plates stacked additionally function to seal layer edges.

With respect to claim 12: Function areas that can operate at high temperature are formed in an interior of the stack (Gonjo et al, Fig.1a, item 7a).

With respect to claim 13, A system including at least one of an evaporator (Fig.1, item 2), a reactor (4,4a,5,6a,6b) and a heat exchanger (7a) for heating or coverting at least one medium said system comprising: a plurality of layers arranged in a stack (Col 5, lines 15-22); a plurality of separator devices (46) which divide said stack into a plurality of function areas; a lower end plate and an upper end plate (Gonjo et al, Fig.9), arranged at upper and lower extremities of said stack,

Gonjo et al does not teach a plurality of layers of pressed catalyst material arranged in a stack. Schussler et al teaches an apparatus made of pressed catalyst layers used for producing hydrogen from hydrocarbons. A reaction mixture flows under

pressure through the catalyst layer while the pressure drops. Since the catalyst coated alloy plate layers used in the reactor portion of Gonjo et al's system and the pressed catalyst layers disclosed by Schussler et al are functionally equivalent, it would have been obvious to one of ordinary skill to have replaced the catalyst coated alloy plate layers with pressed catalyst layers with a reasonable expectation of success. With reference to Fig.2 of the Schussler et al reference, the surrounding edges of each pressed catalyst layer define, as a whole, an insulating layer surrounding the functional portions of each layer.

Gonjo et al does not teach insulating plates provided between end plates and respective adjacent layers of said stack; devices for clamping the layers between the two end paltes; and an insulation layers insulating said stack froma surroduning environmanet, said insulation layer insulating said stack froma surroudning environment said insulation layer being formed separatelty from said stack and laterally surrounding the stack. Pow et al teaches a reactor (Fig.1) that has endplates (15 and 11). Additionally, a reactor containment shell (Fig.8, item 12) corresponds to claimed insulation plates and is found adjacent to end plates.The containment shell effectively functions to isolate the reactor assembly from the outside environment. Since Pow et al teaches the concept of providing a stacked functional system with insulator plates it would have been obvious to one of ordinary skill to have improved on the apparatus disclosed by Gonjo et al and Schussler et al by providing an insulation plate adjacent to the end plates and layers. One of ordinary skill would have been motivated by the desire to further insulate the layers from the outer environment.

With respect to claim 14, Gonjo et al as set forth above fails to teach that the end plates and the devices for clamping in the layers are provided outside a thermally insulated area defined by outer insulating plates and insulation. Pow et al additionally illustrates that tie rods can be situated such that they are exterior to any reactor components (Fig.1). Since the apparatus disclosed by Gonjo et al uses tie rods to hold the layers togather (Gonjo et al, Col 13, lines 25-26), it would have been obvious to one of ordinary skill to have employed tie rods located outside of the housing since one of ordinary skill would have realized such a modification is just a simple matter of design choice.

With respect to claim 15, Gonjo et al illustrates educt ducts which extend through at least a portion of the layers, by way of which educt ducts individual function areas can be selectively acted upon by respective educts; connection ducts which extend through at least a portion of the layers, by way of which connection ducts educts or products can be transferred from a first connection area into a second function area; product ducts which extend through at least a portion of the layers, by way of which product ducts heated educts and reaction products can be removed from the respective function areas (Gonjo et al, Fig.4).

With respect to claim 16, Gonjo et al illustrates different educt ducts which selectively communicate with respective function areas for admitting an identical educt to different function areas, and different product ducts for removing the product from the respective function areas (Gonjo et al, Fig.4).

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alex Wachtel whose telephone number is 571-272-1455. The examiner can normally be reached on 10:30am to 6:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Glenn Caldarola, can be reached at (571)-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700